

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for decreasing required radio spectrum in a communication system using variable bandwidth, the method comprising:

dividing radio frequencies of the communication system into a wideband channel radio frequency and narrowband channel radio frequencies; and

communicating user data using both the wideband channel radio frequency and the narrowband channel radio frequencies,

wherein the narrowband channel radio frequencies are used for communicating user data when a device involved in the communication is located in cell boundary regions.

2. (Original) The method of claim 1, wherein a higher frequency re-use factor is applied to said narrowband channel radio frequencies.

3. (Original) The method of claim 1, wherein at least in some cells of the communication system both the narrowband channel radio frequencies and the wideband channel radio frequency are allocated so that the narrowband channel radio frequencies are used to extend cell range.

4. (Original) The method of claim 1, wherein the narrowband channel radio frequencies are divided among adjacent communication cells in such a way that adjacent cells are using different narrowband channel radio frequencies.

5. (Original) The method of claim 1, wherein the narrowband channel radio frequencies are located outside the wideband channel.

6. (Original) The method of claim 5, wherein the narrowband channel multiple access method incorporates spreading as a means to implement spectrum sharing between adjacent cells.

7. (Original) The method of claim 1, wherein the narrowband channel radio frequencies are located inside the wideband channel radio frequency.

8. (Original) The method of claim 1, wherein at least one of the communication cells includes a repeater configured to operate using both wideband channel radio frequencies and narrowband channel radio frequencies.

9. (Original) The method of claim 1, further comprising transmission of communication scheduling information using a narrowband channel radio frequency.

10. (Original) The method of claim 9, wherein scheduling information includes terminal identity for a terminal that will use a channel.

11. (Original) The method of claim 1, wherein use of the wideband channel radio frequency is coordinated.

12. (Original) The method of claim 1, wherein the narrowband channel radio frequencies are assigned to different communication cells.

13. (Currently Amended) A wireless communication system using variable bandwidth to increase re-use of frequency channels in the wireless communication system, the system comprising:

a mobile station having a receiver and a transmitter, the receiver and transmitter being configured to adaptively sample frequency and bandwidth; and

a base station having a receiver and a transmitter, the receiver and transmitter being configured to adaptively sample frequency and bandwidth,

wherein communication between the mobile station and the base station occurs utilizing at least two different frequency carrier bandwidths: narrowband and wideband, and wherein narrowband frequency carrier bandwidths are used in communication between the mobile station and the base station when the mobile station is located in the vicinity of a cell boundary.

14. Canceled.

15. (Currently Amended) The system of claim [[14]] 13, wherein narrowband carriers are used in communication between the mobile station and base station to enable higher re-use of frequency channels without multiplying operator spectrum requirements.

16. (Currently Amended) The system of claim [[14]] 13, wherein the narrowband carriers are outside a full bandwidth channel.

17. (Original) The system of claim 16, wherein the narrowband carrier or narrowband carriers outside the full bandwidth channel implement spreading.

18. (Currently Amended) The system of claim [[14]] 13, wherein the narrowband carriers are inside a full bandwidth channel.

19. (Currently Amended) The system of claim [[14]] 13, wherein the mobile station utilizes multiple antennas.

20. (Currently Amended) A device operable in a wireless communication environment and configured to utilize variable bandwidth, the device comprising:

a radio interface configured to communicate with base stations in a wireless communication environment; and

a processor coupled to the radio interface, the processor providing commands to modulate at least two transmission and receive bandwidths: wideband and narrowband,

wherein the wireless communication environment implements narrowband bandwidth for communication when the device is in cell boundary regions.

21. (Original) The device of claim 20, wherein the narrowband carriers are inside a full bandwidth channel.

22. (Original) The device of claim 20, wherein the narrowband carriers are outside a full bandwidth channel.

23. (Original) The device of claim 22, wherein the narrowband carrier or narrowband carriers outside the full bandwidth channel implement spreading.

24. (Original) The device of claim 20, further comprising multiple antennas.

25. (New) The method of claim 1, wherein user data is communicated using a narrowband channel radio frequency when a device involved in the communication is in an idle mode.

26. (New) A method for decreasing required radio spectrum in a communication system using variable bandwidth, the method comprising:

dividing radio frequencies of the communication system into a wideband channel radio frequency and narrowband channel radio frequencies; and

communicating user data using both the wideband channel radio frequency and the narrowband channel radio frequencies,

wherein, when a device involved in the communication approaches a cell border, the device is handed to a narrowband channel radio frequency for communicating user data.

27 (New) The wireless communication system of claim 13, wherein the narrowband frequency carrier bandwidths are further used in communication between the mobile station and the base station when the mobile station is in an idle mode.

28. (New) The device of claim 20, wherein the wireless communication environment also implements narrowband bandwidth for communication when the device is in an idle mode.

29. (New) The method of claim 26, wherein the device is further handed to a narrowband channel radio frequency for communicating user data when the device is in an idle mode.